

WHAT IS CLAIMED IS:

1. A method for reducing a size of a mitral valve annulus, comprising:
positioning at least a portion of a retractor substantially adjacent a portion of a circumference of the annulus;
5 coupling one or more of a plurality of extendable members of the retractor to the portion of the circumference;
reducing the diameter of an opening in the distal end of the retractor, wherein the opening is at least partially
defined by the portion of the retractor coupled to the portion of the circumference, and wherein reducing the diameter of
the opening in the distal end of the retractor reduces the diameter;
positioning at least a portion of one or more fasteners in the portion of the circumference to inhibit deformation
10 of the reduced diameter of the portion of the circumference of the mitral valve annulus.
2. The method of claim 1, wherein the retractor comprises:
a conduit, wherein the plurality of extendable members are at least partially positionable in the conduit,
wherein the plurality of extendable members at least partially defines the opening in the distal end of the retractor,
15 wherein extending the distal ends of the plurality of extendable members out of the conduit increases the
corresponding diameter of the predetermined shape formed by the plurality of extendable members, and wherein
retracting the distal ends of the plurality of extendable members out of the conduit decreases the corresponding
diameter of the predetermined shape formed by the plurality of extendable members; and
a depression positioned towards the distal end of the outer surface of at least some of the plurality of
20 extendable members.
3. The method of one or more of claims 1-2, wherein the retractor comprises:
a conduit, wherein the plurality of extendable members are at least partially positionable in the conduit,
wherein the plurality of extendable members at least partially defines the opening in the distal end of the retractor,
25 wherein extending the distal ends of the plurality of extendable members out of the conduit increases the
corresponding diameter of the predetermined shape formed by the plurality of extendable members, and wherein
retracting the distal ends of the plurality of extendable members out of the conduit decreases the corresponding
diameter of the predetermined shape formed by the plurality of extendable members; and
a depression positioned towards the distal end of the outer surface of at least some of the plurality of
30 extendable members;
wherein positioning the portion of the retractor adjacent the annulus comprises positioning the distal end of the
retractor with retracted extendable members substantially in the annulus and extending the extendable members until the
portion of the circumference of the annulus is positioned at least substantially in the depressions.
- 35 4. The method of one or more of claims 1-3, further comprising providing a vacuum through one or more
openings positioned in one or more of the plurality of extendable members.
5. The method of one or more of claims 1-4, further comprising providing a vacuum through one or more
opening positioned in an alternating pattern in one or more of the plurality of extendable members.

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6. The method of claim 5, further comprising forming a complementary pattern to the pattern of the extendable members comprising vacuum openings.
7. The method of claim 5, further comprising positing a suture through the portions of the circumference coupled to the vacuum openings of the extendable members.
8. The method of one or more of claims 1-7, further comprising adhering the portion of the circumference to a depression positioned towards the distal end of the outer surface of at least some of the plurality of extendable members.
9. The method of one or more of claims 1-8, further comprising:
adhering the portion of the circumference to a depression positioned towards the distal end of the outer surface of at least some of the plurality of extendable members,
increasing the coefficient of friction between a surface of the depression and the portion of the circumference.
10. The method of one or more of claims 1-9, further comprising adhering the portion of the circumference to a depression positioned towards the distal end of the outer surface of at least some of the plurality of extendable members, wherein the depression comprises one or more surface irregularities to increase the coefficient of friction between the surface of the depression and the portion of the circumference.
11. The method of one or more of claims 1-10, further comprising extending one or more suture needles positioned in a conduit in one or more of the extendable members through a depression positioned towards the distal end of the outer surface of the extendable member and the portion of the circumference of the annulus positioned in the depression.
12. The method of one or more of claims 1-11, further comprising extending one or more suture needles positioned in a conduit in one or more of the extendable members through a depression positioned towards the distal end of the outer surface of the extendable member and the portion of the circumference of the annulus positioned in the depression, wherein extending the suture needles through the depression and the portion of the circumference comprises forming a suture loop extending through the portion of the circumference.
13. The method of claim 12, further comprising positioning a second suture through the plurality of suture loops.
14. The method of one or more of claims 1-13, further comprising extending one or more suture needles positioned in a conduit in one or more of the extendable members through a depression positioned towards the distal end of the outer surface of the extendable member, the portion of the circumference of the annulus positioned in the depression, and an opening in a coupler positioned toward the distal end of the depression, wherein extending the suture needles through the depression, the portion of the circumference, and the opening in the coupler comprises forming a suture loop extending through the portion of the circumference, the opening in the coupler and

around a coupling member, and wherein the coupling member inhibits the suture loop from retracting through the opening in the coupler.

15. The method of claim 14, wherein the formed suture loop extends through a second opening in a second
5 coupler positioned toward the proximal end of the depression.

16. The method of claim 15, further comprising inhibiting movement of the proximal end of the suture loop with the second coupler.

10 17. The method of one or more of claims 1-16, further comprising extending one or more coupling members of a first clip positioned in a conduit in one or more of the extendable members through a depression positioned towards the distal end of the outer surface of the extendable member, the portion of the circumference of the annulus positioned in the depression, and an opening in a second clip positioned toward the distal end of the depression.

15 18. The method of claim 17, further comprising inhibiting retraction of the distal end of the coupling member with the opening in the second clip.

19. The method of claim 17, wherein the first clip comprises a suture extending through the first clip
20 orthogonal to the coupling member.

20. The method of claim 17, wherein the second clip comprises a suture extending through the second.

21. The method of one or more of claims 1-20, further comprising activating one or more collars comprising
25 extending one or more inactivated collars positioned in a conduit in one or more of the extendable members through a depression positioned towards the distal end of the outer surface of the extendable member and the portion of the circumference of the annulus positioned in the depression, wherein the depression facilitates activation of the extending inactivated collars, wherein the activated collars comprise a loop extending through the circumference of the annulus.

30 22. The method of claim 21, wherein the loop of the activated collars extends around one or more sutures.

23. The method of one or more of claims 1-22, further comprising extending one or more first clips positioned in a conduit in one or more of the extendable members through a first opening in a first plate positioned toward the
35 proximal end of a depression, the depression positioned towards the distal end of the outer surface of the extendable member, the portion of the circumference of the annulus positioned in the depression, and a first opening in a second plate positioned toward the distal end of the depression, wherein extending the first clip couples the first plate, the portion of the circumference of the annulus, and the second plate to each other.

40 24. The method of claim 23, further comprising positioning one or more first clips through a second opening in the first plate, the portion of the circumference of the annulus, and a second opening in the second plate, wherein

extending the first clip couples the first plate, the portion of the circumference of the annulus, and the second plate to each other.

25. The method of one or more of claims 1-24, wherein the fasteners comprise staples.

26. A method for reducing a size of a mitral valve annulus, comprising:
positioning at least a portion of two or more support members of a retractor substantially adjacent a posterior leaflet;

using the support members to position the posterior leaflet such that a portion of the mitral valve annulus is substantially exposed;

positioning at least a portion of one or more fasteners in the portion of the circumference; and
activating the fasteners to reduce the diameter of the portion of the circumference when activated.

27. The method of claim 26, further comprising:

positioning a first support member and a second support member substantially on a first side of the posterior leaflet, and wherein the second support member is adjacent the posterior leaflet; and

positioning a third support member on a second side of the posterior leaflet, wherein the second side is opposite the first side, and wherein the second side is adjacent the mitral valve annulus.

28. The method of claim 27, further comprising: moving the second support member toward the third support member such that the posterior leaflet is inhibited from moving; and moving the second and third support members away from the first support member such that at least a portion of the posterior leaflet is pulled away from the mitral valve annulus to use the support members to position the posterior leaflet.

29. The method of one or more of claims 26-28, wherein at least one of the support members comprises a plurality of suction ports.

30. The method of one or more of claims 26-29, further comprising exposing the portion of the mitral valve annulus using a plurality of suction ports in at least one of the support members.

31. The method of one or more of claims 26-30, further comprising positioning a first support member and a second support member substantially on a first side of the posterior leaflet, wherein the first side is opposite a second side, wherein the second side is adjacent the mitral valve annulus, and wherein the second support member is adjacent the posterior leaflet.

32. The method of claim 31, further comprising moving the second support member away from the first support member and the mitral valve annulus such that at least a portion of the posterior leaflet is pulled away from the mitral valve annulus.

33. The method of one or more of claims 26-32, further comprising positioning a first support member substantially on a first side of the posterior leaflet; and positioning a second support member on a second side of the

posterior leaflet, wherein the second side is opposite the first side, and wherein the second side is adjacent the mitral valve annulus.

34. The method of claim 33, further comprising moving the second support member toward the first support member such that the portion of the mitral valve annulus is inhibited from moving.

35. The method of claim 34, further comprising deforming the portion of the mitral valve annulus using complementary pairs of depressions positioned in the surface of the first and second support members.

36. The method of claim 34, further comprising:
extending a plurality of suture needles from the second support member forming suture loops through the portion of the mitral valve annulus; and
positioning one or more sutures through the suture loops.

37. The method of one or more of claims 26-34, wherein the fasteners comprises one or more sutures.

38. The method of one or more of claims 26-37, further comprising coupling one or more ends of the fasteners to one or more trigones.

39. A method for reducing a size of a mitral valve annulus, comprising:
positioning at least a portion of a retractor substantially in a portion of a circumference of the annulus;
reducing the diameter of the portion of the circumference;
positioning at least a portion of one or more fasteners in the portion of the circumference to inhibit deformation of the reduced diameter of the portion of the circumference of the mitral valve annulus.

40. The method of claim 39, wherein the retractor comprises at least a pair of pincers.

41. The method of one or more of claims 39-40, wherein the retractor comprises at least a pair of pincers, and further comprising moving the distal end of the pincers positioned in the circumference in a direction towards each other.

42. The method of one or more of claims 39-41, wherein the fasteners comprise one or more collars and wherein positioning at least a portion of one or more fasteners comprises forming the collar in the portion of the circumference.

43. A method for reducing a size of a mitral valve annulus, comprising:
positioning at least a portion of an inactivated fastener substantially in a portion of a circumference of the annulus;
activating the inactivated fastener reducing the diameter of the portion of the circumference, wherein the activated fastener inhibits deformation of the reduced diameter of the portion of the circumference of the mitral valve annulus.

44. The method of claim 43, wherein the fastener comprises a staple.
45. The method of one or more of claims 43-44, wherein the fastener comprises one or more depressions that
5 facilitate activation of the fastener.
46. The method of one or more of claims 43-45, wherein the fastener comprises indicia that assist a user in
assessing a depth of insertion of the fastener, and wherein depth of insertion is related to an amount of reduction of
the diameter of the portion of the circumference.
- 10 47. The method of one or more of claims 43-46, wherein the fastener comprises indicia that assist a user in
assessing a depth of insertion of the fastener, wherein depth of insertion is related to an amount of reduction of the
diameter of the portion of the circumference, and wherein the indicia comprise depressions.
- 15 48. A method for reducing a size of a mitral valve annulus, comprising:
positioning a tool along a portion of a circumference of the annulus, the tool comprising a plurality of first shaped
staples; and
activating the tool, the activation causing the first shaped staples to form second shaped staples upon
penetration of the circumference;
20 wherein the penetration reduces the portion of the circumference of the annulus.
49. A method for reducing a size of a mitral valve annulus, comprising:
positioning a plurality of first shaped staples along a portion of a circumference of the annulus; and
causing the first shaped staples to form second shaped staples upon penetration of the
25 circumference, thereby reducing the portion of the circumference of the annulus.
50. A method for reducing a size of an annulus, comprising:
positioning at least one object along a portion of the annulus; and
causing the at least one object to reduce the portion of the annulus.
- 30 51. A method for reducing a size of a mitral valve annulus, comprising:
positioning a stent proximate to a portion of a circumference of the annulus, the stent comprising
attachment members;
positioning the attachment members through tissue along the portion; and deforming the stent,
35 wherein the deformation causes a reduction of the portion.
52. A method for reducing a size of a mitral valve annulus, comprising:
positioning at least one object adapted to engage a portion of a circumference of the annulus;
engaging the portion; and
40 deforming the at least one object, wherein the deformation causes a reduction of the portion.

53. A method for reducing a size of an annulus, comprising:
positioning an object proximate to the annulus; and
activating the object, wherein the activation causes a reduction of the annulus.
- 5 54. A method for repairing a mitral valve annulus, comprising:
placing a sizing tool in the mitral valve; and
tightening the annulus around the tool with a suture, the suture comprising: needles on each end of the suture;
colored bands along a length of the suture;
a pledget fixed at a midpoint of the suture; and
10 a pledget adapted to be secured at an opposite end of the fixed pledget.
55. A method for repairing a mitral valve annulus, comprising:
placing a tool in the mitral valve; and
tightening the annulus around the tool with a suture.
- 15 56. A suture, comprising:
needles on each end of the suture;
colored measurement bands along a length of the suture;
a pledget fixed at a midpoint of the suture; and
20 a pledget adapted to be secured at an opposite end of the fixed pledget.
57. A suture, comprising:
attachment members on at least one end of the suture;
bands proximate to the at least one end;
25 a first pledget proximate to the bands; and
a second pledget at an opposite end of the first pledget.
58. A suture, comprising:
attachment members;
30 bands; and
at least one pledget.
59. A method for reducing a size of a mitral valve annulus, comprising:
incising a portion of a fatty tissue in a atrioventricular groove proximate to the mitral valve annulus;
35 positioning a device through the incision and proximate to a portion of a great cardiac vein, the device
comprising a plurality of attachment members;
attaching the attachment members to a portion of the mitral valve annulus; and
deforming the device while observing the mitral valve annulus and a surrounding area.
- 40 60. The method of claim 59, wherein the device is further deformed until satisfactory observations are
assessed by an observation method.

61. The method of claim 59, further comprising observing a mitral valve regurgitation
62. The method of claim 59, further comprising observing a mitral valve regurgitation using an
5 echocardiograph.
63. A method for reducing a size of a mitral valve annulus, comprising:
incising a portion of a fatty tissue in an atrioventricular groove proximate to the mitral valve annulus;
positioning a device through the incision, the device comprising at least one attachment member; and
10 deforming the device;
wherein the deformation causes an engagement of the annulus by at least one of the attachment members
and reduces the size of the annulus.
64. A method for reducing a size of an annulus, comprising:
15 positioning at least one object along an exterior portion of the annulus; and
causing the at least one object to reduce the portion of the annulus.
65. A method for reducing a size of a mitral valve annulus, comprising:
incising a portion of the great cardiac vein;
20 positioning a device through the incision; and
deforming the device;
wherein the deformation reduces the size of the annulus.
66. A device adapted to reduce a size of a mitral valve annulus, comprising:
25 an approximately semicircular adjustable body; and
a plurality of attachment members coupled to one side of the body; wherein the device is adapted to be
deformed; and
wherein the deformation causes an engagement of the annulus by the attachment members and reduces the size
of the annulus.
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67. A device adapted to reduce a size of a mitral valve annulus, comprising:
an approximately semicircular adjustable body; and
a plurality of attachment members coupled to one side of the body.
68. A device adapted to reduce a size of a mitral valve annulus, comprising:
35 a first portion;
a second portion, wherein the first portion and the second portion comprise a plurality of attachment
members on similar sides; and
a third portion, wherein the first portion and the second portion are slidably attached to the third portion,
40 wherein the third portion is adapted to secure the first portion and the second portion.

69. A method for incising an atrioventricular (AV) groove, comprising:
incising the AV groove via a scalpel adapted to blindly incise the AV groove.
70. A method for incising an atrioventricular (AV) groove, comprising:
5 incising the AV groove via a scalpel adapted to blindly incise the AV groove; and
viewing the incision via a reflective surface adapted to provide a viewable incision.